



## **Technical Memorandum**

### **Ecological and Habitat Health Assessment Wetlands A, B, and C**

**Gulfco Marine Maintenance Superfund Site  
906 Marlin Avenue  
Freeport, Brazoria County, Texas  
EPA Identification No. TXD0055144539**

**Non-Time Critical Removal Support  
Contract: EP-W-06-004  
Task Order: 0067-NSEE-06JZ**

*Prepared for*

U.S. Environmental Protection Agency  
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## 1.0 INTRODUCTION

This technical memorandum documents the Ecological and Habitat Health Assessment performed by EA Engineering, Science, and Technology, Inc. (EA) for the former Gulfco Marine Site (Site) located in Freeport, Brazoria County, Texas. The site reconnaissance was conducted on 15 December 2010 for the U.S. Environmental Protection Agency (EPA) Region 6 as part of Task Order No. 0067-NSEE-06JZ under EPA Contract No. EP-W-06-004, in accordance with a Statement of Work (SOW) issued by EPA in October 2010.

The site consists of approximately 40 acres within the 100-year coastal floodplain along the north bank of the Intracoastal Waterway between Oyster Creek to the east and the Old Brazos River Channel to the west. During the 1960's, the Site was used for occasional welding and was used as a barge cleaning facility 1971 through 1999. Occasional sandblasting and barge repair/refurbish also occurred onsite. The surface impoundments were closed under the Texas Water Commission's (Texas Commission on Environmental Quality (TCEQ) predecessor agency) direction in 1982 (PBW, 2010).

## 2.0 ECOLOGICAL AND HABITAT HEALTH

Site reconnaissance was performed on 15 December 2010 by Ann B. Shortelle, Ph.D. The primary objective was to visually evaluate the ecological and habitat health of wetlands A, B, and C (Figure 3, PBW, 2010) onsite.

### 2.2 ECOLOGICAL HABITAT

Wetlands A and B are part of the contiguous high marsh/salt pan area between the site and Oyster Creek. These wetland areas were inundated with water (surface to 4 cm below grade), and connecting ditches (wetland A) and marsh pan (wetland B) held several centimeters of water (Photo 1).



Photo 1: Water inundation in Wetland A (foreground) and B



Wetland C occurs along Marlin Avenue, is higher and dryer than Wetlands A and B. This entire area was predominately dry during the site visit. No standing water was observed.

### 2.3 VEGETATION

Common vegetation in Wetlands A and B were typical of halophytic vegetation for estuarine wetlands, both obligate and facultative (Table 1).

Table 1. Common obligate and facultative wetland vegetation

	Wetland A	Wetland B	Wetland C
<i>Distichlis spicata</i>	X	X	
<i>Batis maritima</i>	X	X	
<i>Salicornia spp.</i>	X	X	
<i>Spartina spartinae</i>		X	X
<i>Monanthochloe littoralis</i>		X	X
<i>Lycium carolinianum</i>	X	X	
<i>Scirpus maritimus</i>	X	X	
<i>Eleocharis sp.</i>		X	X
<i>Iva frutescens</i>			X

Vegetation was dense in wetland areas interspersed with salt pan (Photo 2). Vegetation diversity and density were not noticeably different between Wetland A/B and surrounding wetlands.



Photo 2: High marsh salt pan



Common facultative wetland vegetation (Table 1) found in Wetland C was present in most areas and similar in extent and composition to surrounding road bordering wetlands (Photo 3).



Photo 3: Wetland C

## 2.4 BIOLOGY

Evidence of benthic macroinvertebrates were observed throughout Wetland A and B. Crab burrows and tube-dwelling organisms were plentiful throughout (Photo 4), with similar densities in Wetlands A/B visually compared to the surrounding areas. Multiple species of crab were observed in Wetland A and B.





Photo 4: Typical benthic macroinvertebrate dwelling density in Wetland B (approximate spacing 10 cm).

Pooled water in Wetland A supported numerous aquatic taxa (fish and invertebrates). Similar taxa were not observed in the pooled areas of Wetland B, perhaps due to diminished water transparency in that pool.

Both Wetland A and B appear to support wildlife. Numerous wading birds and shore birds were observed throughout both areas, and overhead. Osprey were also present. Additional signs of wildlife use were observed throughout the wetlands, including mammal and avian tracks.

Invertebrates were not observed in Wetland C. However, the area does support some wildlife use. Wetland C is similar to the rest of the wetland area bordering the road.

## 2.5 EXISTING CONDITION

Near the Former surface Impoundment Area, some areas of Wetland B are degraded due to vehicular traffic, but otherwise both wetland areas appear to be healthy, high functioning, and are indistinguishable from the surrounding wetlands.



Wetland C, along with other similar wetland areas along Marlin Avenue, has been impacted by fill placement, and some trampling by people, dogs, etc., from the surrounding areas (Photo 5).



Photo 5: Typical disturbance in Wetland C

## 2.6 SUMMARY

Observed human impacts to wetland habitats are minor. Wetlands A, B, and C are not visually distinguishable from surrounding wetlands in terms of wetland species composition and approximate density, presence of invertebrates, and wildlife usage. These wetlands are providing valuable wetland marsh functions, such as wildlife habitat, food, flood storage, water quality enhancement, and groundwater recharge.

Any disturbance, such as excavation of sediments or other remedial activities, would require decades for sediments in this area to return to the salty sediment marsh type environment present today.

## REFERENCES

Pastor, Behling & Wheeler, LLC (PBW). 2010. Final Screening-Level Ecological Risk Assessment, Gulfco Marine Maintenance Superfund Site, Freeport, Brazoria County, Texas, EPA Facility ID: TXD0055144539, May.

EPA. 2010. RAC II Statement of Work for Non-Time Removal Support, Gulfco Marine Maintenance, Freeport, Texas. Contract No. EP-W-06-004. 6 October.